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ABSTRACT

The origin and establishment of three innovative graduate institutions in the Boston, Massachusetts, area were assessed: The Arthur D. Little Management Education Institute, The Massachusetts General Hospital Institute of Health Professions, and the Wang Institute of Graduate Studies. These institutions started in non-educational institutions and were chartered as professional master's degree-granting institutions. Historical case studies supported by a participatory research design were used to determine how these institutions fit into the evolution of American professional graduate education, and specifically into the integration of theory and practice. Over 100 interviews covered institutional history, current status and future prospects, and the staff/student's relationship with the institution. Institutional contacts and documents were also consulted. Linkages common to these institutions included resources from the parent organization, the organizational connection to both parent organizations and respective industries; and linkage with their marketplace. The three institutions are compared concerning integration of theory and practice, as well as balancing demands toward industry (e.g., advancing technology) versus demands toward traditional university-based graduate education (e.g., accreditation). (SW)

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Search for Integration of Theory and Practice: The Early History and Analysis of Three Innovative Graduate Institutions

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This paper was presented at the Annual Meeting of the Association for the Study of Higher Education held at the Gunter Hotel in San Antonio, Texas, February 20-23, 1986. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

Purpose and Perspective

This is a study of the origin and establishment of three innovative graduate institutions in the Boston, Massachusetts, area: The Arthur D. Little Management Education Institute (ADL/MEI), The Massachusetts General Hospital Institute of Health Professions (MGH IHP), and the Wang Institute of Graduate Studies. These relatively new institutions have common characteristics that promise to make their contribution distinctive and their situation special within American graduate education: they originated in non-educational institutions; they were inspired by persons whose primary professional commitment was outside of education; and, unlike most of graduate education, they were chartered as professional master's degree-granting institutions.

This paper will primarily focus on how these institutions fit into the evolution of American professional graduate education, specifically it will analyze how they contribute to the 350 year search to integrate theory and practice and how they respond to the challenges confronting this search.

Methodology and Data Sources

A multi-method approach was used to collect the data for this study. The main method was a historical case study approach supported by a participatory research design. Over one hundred interviews were conducted to gather oral history for each of the cases. Interviews were the primary source of information because documents were scarce and access to them was generally only afforded through the interview process. Twelve open-ended questions regarding institutional history, current status and future prospects and the individual's relationship with the institution guided each interview. The exact questions, the direction and length of the

interview were contingent upon the individual's experience and perspective, i.e. faculty, staff, planner, student. The average interview was approximately forty-five minutes, although many people well-versed in the institutional history were interviewed frequently at greater lengths. The initial interview schedule was established in cooperation with the institutional contact, but remained flexible as the interviews generated additional references and data sources. Each interview was taped and transcribed. Information was also drawn from the Board of Higher Education documents, data were secured through direct institutional contacts, and several visits to each institution were of considerable help for synthesizing the data from these sources.

Historical analysis of the evolution of graduate professional education was based on an extensive literature review. Case studies of similar institutions were particularly helpful for analyzing trends, issues and driving forces for change. An in-depth analysis of Johns Hopkins, Clark and Chicago universities provided relevant and significant comparative data.

Historical Setting

It was not until the founding of Johns Hopkins University, 1874, that American professional education was successfully elevated to the university graduate level. Prior to this time professional and graduate education were separate. In fact before the 1800's the apprenticeship and related systems of professional training remained ouside the auspices of higher education, and this distance sharpened the dichotomy between an education grounded in theory and one aimed at practice in the professions. These early separate roots of graduate professional education and the forces for change (merger) are summarized in Figure 1.1. The colonial college model was well established in America, but many changes were

(insert figure 1.1)

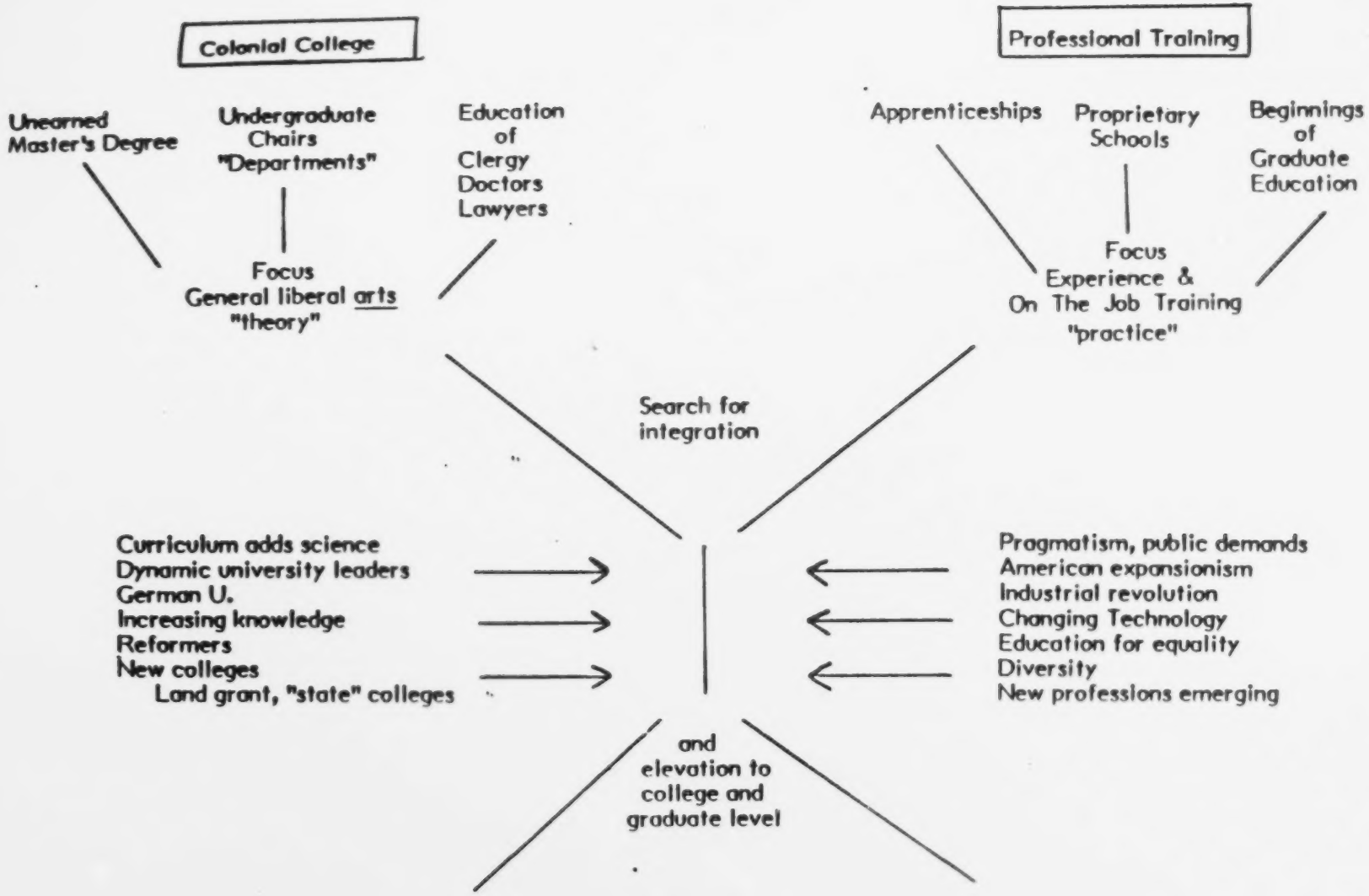

Figure 1.1. Graduate Professional Education
Early Roots and Forces for Change

threats to its unblemished continuation such as a pragmatic and egalitarian movement spurred on by the Industrial Revolution and advancing technology, and the presence of many reformers influenced by the graduate research model of the German University (e.g. George Ticknor, Eliphalet Nott, and later Charles W. Eliot, Daniel C. Gilman). Although a new specialized, secularized, egalitarian, diverse graduate institution was emerging in the mid 1800's these were frustrated and turbulent beginnings. The newer professions such as education or engineering were met with skepticism and resistance as were legislative attempts to respond to the need for scientific instruction in agriculture. Many of the early experiments failed as exemplified by Henry Tappan who attempted to establish the University of Michigan at the advanced graduate level only. The characteristics and themes of graduate education were however, already molded within this uncertain environment: normal resistance to innovation and change by established faculties, tension between scholarship and professional practice as the primary objectives of graduate study, impact of a fast but unevenly growing body of knowledge, conflict between the internal academic community and the external needs of the times (Berelson, 1960, p.3).

It was within this climate that Johns Hopkins, Clark and Chicago Universities were established as free-standing institutions for the new single purpose of graduate education in America. They were founded by men who recognized needs not being met by conventional colleges, e.g. helping society respond to increasing technology, advancing science, growing pragmatism (Betters-Reed, 1983, p.28). These institutions and the subsequent rapid growth of graduate education led to a reoccurrence of the same themes with the addition of the following ones: the domination of the Ph.D. and university model, disequilibrium between supply and demand,

erratic record of public and private funds, increasing impact of the environment and social responsibility, uncertainty about the purpose of the master's degree, and an increasing number of regulatory agencies and standards (Betters-Reed, 1983, p.238).

Today, professional education has risen to the graduate level in many professions and has reached new heights in stature and power in relationship to the rest of higher education. The master's degree, once a meaningless attainment, has found reinvigoration and redefinition in modern day professions such as business, health and computer science. These newer professions have been assured of legitimation through internal and external standards. The criticism of graduate professional education, however, continues as the increasing numbers of adults, life-long learners and the needs of the masses pressure education for improved quality of life while change, experimentation, and innovation are still slow to respond. In spite of criticism several modern innovative professional graduate schools have attempted to better integrate liberal learning with the development of practical skills. Massachusetts College of Pharmacy and Cambridge College (education) are known for their practitioner focus at the graduate (masters degree) level (Fedo, 1977).

Although interest in practitioner-oriented advanced education increases, the days of endless public support for abstract research and instruction emphasizing theory are waning. It is possible that institutions of the future may resemble the land-grant model of practical research combined with public service (Bowen, 1982, p 9). The decrease in research support is predicted to lead to a decrease in university attendance. Although undergraduate education will suffer from declining enrollments, the Carnegie Council predicts that graduate education will experience a redistribution among fields of disciplines. The master's

level and advanced professional fields will experience a slight increase in enrollments during the years 1980-2000 (Carnegie Council, 1980, pp. 197-198).

Another trend in professional education, stemming from increasing dissatisfaction with higher education's inability readily to respond to the rapid pace of technology and increasing specialization, is the proliferation of non-degree continuing education programs in all types of business and industry. As some of these programs evolve to degree-granting and even graduate level (evidenced in ADL/MEI), graduate professional education within established colleges and universities must ask itself whom it is serving and how well it is responding to society's needs? While higher education could not and should not attempt to meet all of industry's education needs, there are voids which are not being filled. The recent Carnegie Foundation report indicates that 18 degree granting institutions have been identified of which 11 offer graduate degrees (Eurich, 1985). It is certainly no coincidence that these institutions evolved from corporations (directly or indirectly) already tremendously internally and externally invested in higher education. American corporations are spending in excess of $40 billion on employer education, a figure "approaching the total annual expenditures of all of America's four-year graduate colleges and universities" (Eurich, 1985, p. IX). Provisions for the advanced, integrated, education of the professional practitioner and leaders, who chooses not to remain in an academic setting, but desires and needs the rigor and resources such a setting can provide in order to improve and develop professional skills, are lagging. In particular, unmet needs to better integrate theory and practice, and dissatisfaction with university education's response to this need persists.

The three graduate schools in this study were founded in the Boston, Massachusetts area in response to this perceived need, dissatisfaction with higher education's ability to meet it, and a belief that they had the resources to provide improved graduate professional education.

Case Summaries

The Arthur D. Little Management Education Institute was officially chartered as a degree granting institution of graduate education in 1972 after a ten year planning process. This decade of planning started with an ADL contract with the U.S. Agency for International Development to assist the Nigerian government in economic development which included a component for training the Nigerian staff in technical management. Following unsuccessful attempts to develop an educational program affiliated with universities, ADL under the leadership of General James M. Gavin embarked on their own independent venture. The experimental program they developed focused on pragmatism, but also provided a multidisciplined cohesive integration of theory and practice. By 1967 the status of the advanced specialized corporate training program was challenged by students who felt they worked as hard as their university counterparts who received a degree for their efforts and consequently had salary and promotion advantages (Betters-Reed, 1982, p. 89). It took five years to actually receive degree granting status after which time the leaders of ADL/MEI pursued accreditation from the New England Association of Schools and Colleges (NEASC). Accreditation was awarded in 1976, fifteen years after the Program beginnings. Precedent had been set for awarding degree granting authority and accreditation to a profit making corporation's "graduate level" program.

The ADL/MEI M.S. degree in management is eleven months long with 50 credit hours, and a minimum of 700 classroom hours in three specializations: international business, economics and industrial development or energy resource management. The faculty are all part time, primarily from ADL and highly credentialed. The approximately 40 students attend not only from Nigeria, but also other countries in Africa, South America and the Far East.

The Massachusetts General Hospital Institute of Health Professions (MGH IHP) evolved from an even longer period of planning from the early 1960's to 1980. The "visionary" founder of the institute was Dr. John Hilton Knowles, General Director of MGH from 1962-1972. Conscious of the advancing professions in health care and the need to elevate, advance and improve their current training programs, Dr. Knowles established an ad hoc Committee on Teaching and Education to address these issues. This committee symbolized a centralized (corporate) responsibility for education and was the vehicle for subsequent lengthy and complex degree-granting planning process.

In 1977 after considerable community resistance, MGH received authority for five graduate programs: Master of Science in Dietetics, Nursing, Physical Therapy and Speech-Language Pathology and the Graduate Certificate in Social Work in Health Care. In 1982, less than three years after the opening of MGH IHP, the accreditation review process (NEASC) was underway with eleven full-time faculty and 30 part-time faculty. The five programs were at various stages of implementation, projecting small enrollments for each, e.g. 20 maximum in social work and 150 in nursing.

In contrast to to ADL/MEI and MGH IHP, the establishment of the Wang Institute of Graduate Studies was much faster with planning beginning in 1978 and the doors opening in 1980. The founder and chairman of the

Board, Dr. An Wang responded to a pronounced need for highly skilled software engineers and managers. The Wang Institute unlike the other 2 cases was physically separated from the parent company (Wang Laboratories). It was primarily funded by the philanthropy of its founder with financial assistance not only from Wang Labs, but several other high technology companies. The expedient planning process for this nonprofit institution involved influential university faculty administrators, and practitioners on an Institute Advisory Committee (IAC) and National Academic Advisory Committee (NAAC). By September of 1982 The Wang Institute School of Information Technology had been granted accreditation candidacy status (NEASC).

Currently the 12-month M.S. in Software Engineering consists of about 35 students mostly part time who are subjected to very rigorous admission standards and study. The small group of full time faculty must have industrial experience and a Ph.D. They carry heavy teaching loads with no tenure and while salaries are competitive with business, the working days are very long. Other new program possibilities will be considered in the future as the mission and nature of the institute is to be innovative and experimental.

Historical and Organizational Analysis

The three graduate professional schools share many pronounced characteristics. Each school responds to the need of advancing specialization in its respective profession with a graduate, master's degree program. Each program prides itself in providing a rigorous, intense program of study with high standards. The master's rather than the Ph.D. degree was selected for each program because a master's degree program could promote pragmatic, practical educational goals. Figure 1.2

summarizes how these and other similarities are manifestations of the historical themes in graduate professional education.

(insert figure 1.2)

Although the three cases are legitimate institutions of higher education, they are young institutions facing the credibility gap all newer institutions must face or risk rejection. Being new institutions of newer professions contributes to a tenuous position within graduate education. Throughout the history of professional education the newer professions, conscious of a second-class image, have struggled to prove themselves. ADL/MEI, MGH IHP and the Wang Institute are no exception to this pattern, especially since they claim to be better equipped to keep up with the demand in their respective fields and are not formally affiliated with any graduate institution. Thus, they are subject to even greater criticism from established educational institutions and older professions. This is less the case for ADL/MEI as it slowly evolved to the graduate level and poses less of a competitive threat locally, but it still represents a deviation from the norm through its location in industry and, unlike MGH IHP and the Wang Institute, is proprietary.

Proprietary institutions were the subject of Abraham Flexner's criticism and traditional educators have since looked at them askance. However, as long as the profit making goals do not interfere or subordinate the educational goals, the classification of institutions as proprietary does not mean they necessarily are of less quality than nonprofit institutions. There is no evidence that ADL/MEI's proprietary nature has inhibited its ability to fulfill its educational mission. In fact, due to both ADL/MEI's and MGH IHP's unique legal relationship with parent organizations, safeguards were required by the Massachusetts Board of Higher Education to ensure their integrity as professional graduate institutions, such as academic freedom statements, classification of the

Historical Themes	ADL/MEI	MGH IHP	WANG INSTITUTE
- Hegemony of Ph.D. & university model	Reason for establishment as a separate institution; Reason for choosing the master's degree.	Same Same	Same Same
- Disequilibrium between supply and demand	Supply inadequate: no master's degree programs for managers in developing countries.	Supply inadequate: dissatisfaction with quality of graduates in related programs.	Supply inadequate: lack of advanced software engineers and managers.
- Continued search for the integration of theory & practice	Integration of theory and practice is the primary goal; perceived ability to better achieve goal.	Same	Same
	Provided direction for original curriculum design, policies and linkages.	Same: struggle to implement.	Same: Experimenting with methods for curriculum implementation.
- Struggle for acceptance of new professions	Complex chartering and accreditation process for newer profession of management: 1 year M.S. degree.	Same for master's degrees in nursing, health, and advanced certificate in social work.	Relatively new field of software engineering: models for M.S. degrees are still experimental.
- Uncertainty about purpose of master's degree	Defined the purpose of master's degree: for advanced practitioner in a profession.	Same	Same
- Increasing regulatory agencies and standards	Stringent chartering and accreditation process; not eligible for graduate management (ACSB) accreditation. Increasing formalization and professionalization.	Stringent chartering and accreditation process; separate accreditation for each program. Increasing professionalization and formalization.	Less stringent chartering and accreditation review; too early for specialized accreditation. Formalization increasing.
- Resistance to innovation and/or experimentation	Resistance to changes in student population and curriculum.	Some resistance from clinical and planning members regarding redefining and operationalizing early plans by newer core group. Faculty are risk takers.	Minimum resistance to change; freedom for experimentation stressed. Faculty are risk takers.
- Erratic record of public and private funds	Reason for establishing independent program: federal funding discontinued.	Institution started to obtain abundant public funds for education; funds currently scarce.	Institution started when public funds are scarce; philanthropic and industrial support available.
- Increasing impact of environment	Increasing technology requires advances in management education.	Increasing technology requires advances in health care education.	Increasing technology requires advances in software engineering education.
- Increasing social responsibility	Support of educational goals from parent organization and institute's founders.	Same	Same
- Presence and persistence of reformers, leaders, and philanthropists	Founders and leaders succeed in establishment of new organization: General Gavin, Program Directors.	Founders and leaders succeed in establishment of new organization: Knowles, Sanders and MGH leaders, and IHP leaders.	Founders and leaders succeed in establishment of new organization, Wang, Institute administrators.
- Persistence of reformers, leaders and philanthropists	Extended financial and human resource support necessary from parent organization and core staff during years of uncertainty.	Same thorough planning and implementation.	Extensive financial support from philanthropist/founder during this stage; extensive time investment of staff.

Figure 1.2

Relationship Between Historical Themes in Graduate/Professional Education and the Development of ADL/MEI, MGH IHP, and the Wang Institute

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role of trustees and establishment of institutional leadership separate from the parent institution.

The most noticeable characteristic of these institutions is their evolution from the industrial setting rather than the college campus. This setting was deliberately maintained by the founders because it was perceived to be the best way to integrate theory and practice. This choice brought theory to practice after a century-long struggle to elevate the professions to the theoretical level found in the university. Whether or not this direction is a return to the apprenticeship model, as the MGH IHP opposition feared, or an innovative option along the path of continued advancement in the professions is an important issue warranting careful scrutiny.

When professional training was elevated to college and graduate level, many programs discontinued the apprenticeship or clinical practice and replaced it with such university teaching methods as laboratories, limited field studies and the case method. Health professions were generally an exception to this practice, perhaps because they were newer graduate professions and because of the symbiotic relationship between hospitals and colleges. But, generally what had been the setting for the training of the professions later was only the site of clinical affiliation. Thus, although the professions were elevated to college level, the integration of theory and practice in the classroom was not optimal. Although the professions obtained more credibility and legitimacy at the graduate level, their location within college and universities had its drawbacks.

Linkages to Practice

(insert figure 1.3)

Figure 1.3 demonstrates how ADL/MEI, MGH IHP and The Wang Institute planned to overcome the obstacles to integrating theory and practice that traditional institutions face. Their intent was not to provide on-the-job

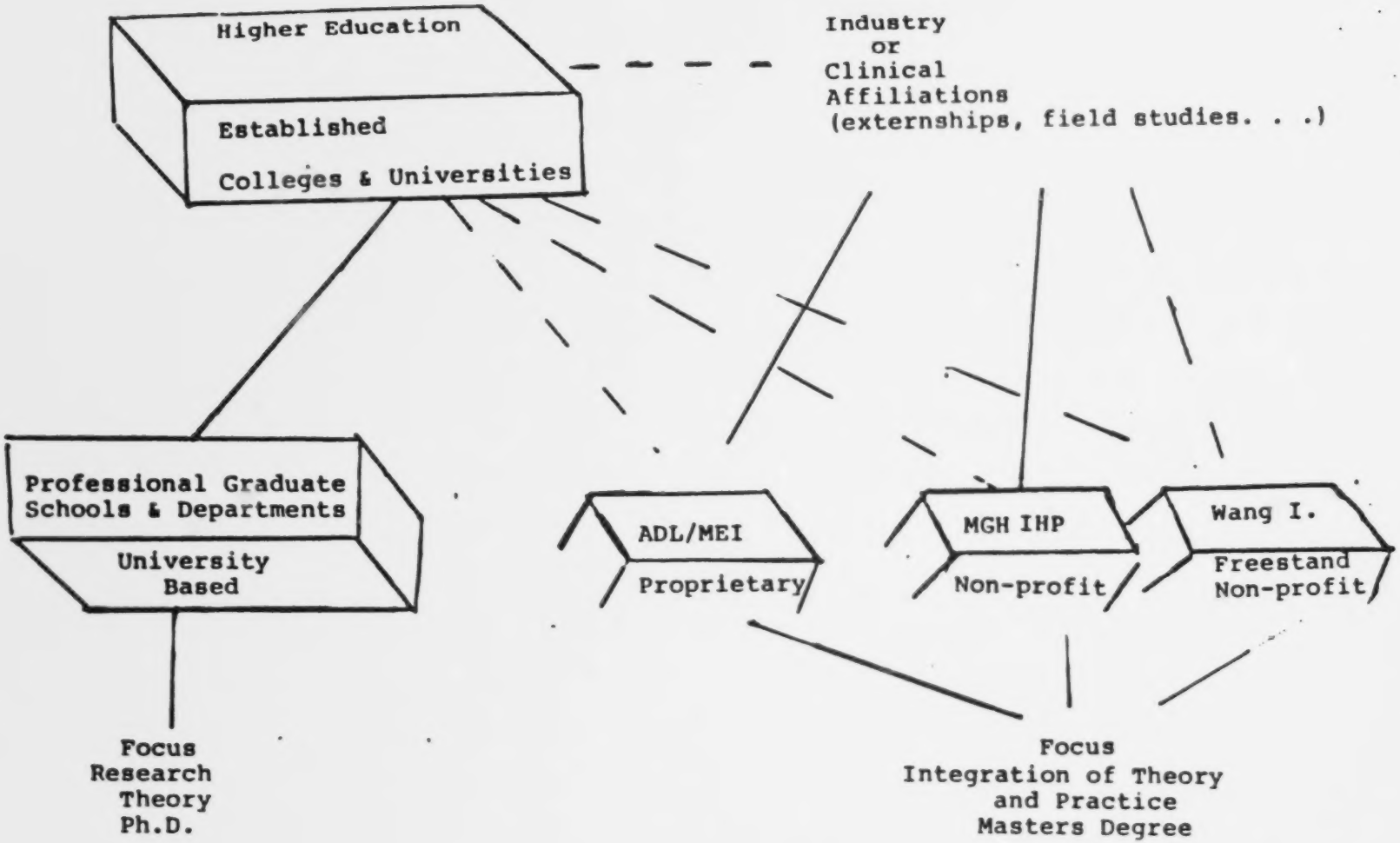

Figure 1.3. The Status of ADL/MEI, MGH IHP and the Wang Institute Within Professional Graduate Education

training for the parent organization, but rather to respond to a larger educational need. In fact, at ADL/MEI an on-the-job training attempt failed mainly because of a need for a more intense classroom experience. While the parent organization was not an institution of higher education, the graduate institution it established became a member of the higher education community. At first glance these new graduate institutions look no different from many young colleges or universities. However, they retained their original linkage and developed new linkages with their parent institutions and clinical industry. Thus in figure 1.3 the three institutions are shown as part of higher education related to the university-based graduate professional school or department and also part of the market or industry they serve through an ongoing affiliation with the parent organization and other linkages (figure 1.4). Their missions also remain suspended between the two environments, unlike the historic separation between the colonial college theory base and the professional training practice base (figure 1.1).

Linkages	ADL/MEI	MGH IHP	Wang Institute
Resources (from parent organization)	-Financial -Buildings -Faculty	-same -same -same	-same -same
Organization			
Parent org.	-Trustees -Administration	-Trustees	-Trustees Exec. V>P>
Industrial	-Part-time faculty, ADL consultants	-Practitioners, clinical assignments	-Faculty w/ industrial experience
Market	-Students with experience -Alumni network Special programs	-Patient & clinical research, Continuing education	-Applicants experience -NAAC -Industrial Liaison

Figure 1.4. The Linkages Between ADL/MEI, MGH IHP and the Wang Institute and Their Professional Industrial Counterparts.

Three types of linkages sustain the relationship between the graduate institutions and their parent organization. First, resources are provided by the parent organization. Although the Wang Institute is not formally connected to Wang Laboratories, the founder and chief executive officer of both is Dr. Wang. Through his influence and support Wang Laboratories provided initial financial support and space for the first planners. Eventually the Wang Institute will be free-standing, but in the meantime its resource linkages are similar to MGH IHP's and ADL/MEI's, except for faculty. MGH IHP and ADL/MEI appoint parent organization members as faculty, although IHP's faculty are primarily external. The Wang Institute faculty are all external, having no direct link to the Wang Laboratories.

The second type of linkage common to these institutions is the organizational connection to both parent organizations and their respective industries. Several of the trustees of MGH IHP, the Wang Institute and ADL/MEI are also trustees of the parent organization. The Wang Institute's president and executive vice president are part-time, splitting their responsibilities between the Wang Laboratories and the Institute. The ADL/MEI administration are appointed by ADL and are considered an integral part of the parent organization's membership. The faculty selection criteria for each institution includes practical industrial experience verifying that the connection to industry is as important as the connection to higher education. For ADL/MEI, which as all part-time faculty, this practical experience continues daily and sometimes supersedes teaching experience. The clinical assignments of IHP

faculty also provide ongoing practical experience and industrial linkage. The Wang Institute faculty's ongoing industrial link varies according to the individual's consulting aspirations, but this is the same at any university. The "professor of the practice" is an exception, however, and provides an important academic link to industry.

The third type of linkage these institutions share is one with their marketplace. For ADL/MEI and MGH IHP, continuing education programs bring other practitioners to the institutes as do special lecture series open to the public at both IHP and the Wang Institute. The ongoing clinical research conducted as MGH by IHP members provides direct feedback to the IHP educators and can be assimilated into course content and practical experience. This process potentially shortens the gap between acquiring new theory and developing application. The extensive alumni network at ADL/MEI facilitated by ADL members links the institution with its market and provides information that helps keep ADL/MEI current. The Wang Institute's National Academic Advisory Committee (consisting of 9 academic and industrial advisors for the software engineering programs and institutional policy and procedures) and corporate liaison roles were developed to provide ongoing information from industry.

The linkages the graduate institutions have with their industry promise to make them more responsive to their market from which they receive information about changing needs and demands. While some of these linkages are similar to traditional and other experimental institutions, the fact that they were adopted in the early stages of organizational development is significant to long-range implementation of their goals.

The Wang Institute, ADL/MEI and MGH IHP have problems to solve, but their solution need not lead to regression in graduate professional education. It may, instead, represent an educational alternative founded to provide practitioner education at the master's degree level. It may

eventually represent a step forward if these schools can achieve their goal of integrating theory and practice better than their traditional university counterparts. A comparison of the three institutions and their attempts to offer theory and practice and to integrate them reveals unique differences and similarities in regard to : administration, organizational structure, faculty, curriculum, and students.

Finding A Balanced Position Between Theory and Practice

The theme of balancing traditional academia with industry permeates the structure and administration of the Wang Institute. The blending of two models of education and administration was apparent from the early planning stage when the IAC and NAAC were established to obtain guidance and credibility from the educational and industrial sectors. This blending of models, however, which is intended to promote the integration of theory and practice, also created tensions. The initial tensions between the deans and the president, the former from traditional academia and the latter from industry, were resolved with a clearer separation of executive and academic governance responsibilities. The resulting position of executive vice president actually located at Wang Laboratories to provide the link to Dr. Wang and industry, further exemplifies the blend of industry and education.

At the MGH IHP, the provost, also serving as a dean, has, and wants, traditional academic credentials. Program directors, although practitioners, have academic qualifications as well. For MGH IHP and to a lesser extent ADL/MEI and the Wang Institute, the implementation of theory and practice was evident in their design through control; they wanted responsibility and control over the students' learning experience. For MGH administrators, who indicated they had to re-educate and train many

graduates or students, their increasing size, complexity and finances emphasized a need for more control.

At ADL/MEI the make-up of their project groups contributed to the integration of theory and practice. The consultants were expected to share theoretical and practical expertise and experience and help their clients apply this knowledge. This interdependent relationship between ADL/MEI and ADL Inc., also evident with MGH IHP and potentially with the Wang Institute and its industry, provides a continual re-evaluation of theory by field testing the success of its application and facilitating a necessary interchange between the classroom and the workplace. Until recently the dean at ADL/MEI was a practitioner serving as a project leader of MEI. The appointment of an academic dean, indicative of the professionalization of ADL/MEI and a trend toward conventionalism, may be accompanied by an increasing emphasis on theory.

The nature of the faculty is crucial to the goal of integrating theory and practice (see figure 1.4 for linkages). At the Wang Institute the criteria for appointing faculty and determining rank and salary are consistent with the goal of integrating theory and practice and rewarding such performance. While consulting is encouraged so that faculty may keep current, it is subordinate to teaching. Most faculty are full-time, except for a few auxiliary faculty temporarily appointed to teach several electives. In contrast, all the ADL/MEI faculty are part-time and most are appointed from the ADL consulting staff. However, this policy is equally consistent with the goal of integrating theory and practice. Teachers' experience with a project group structure and continual field experience enables them to bring a multitude of experiences to the classroom; it does not, however, guarantee that they can teach. Yet, as the past director Robert Ward noted, there is a correlation between the

skills of a good teacher and a good consultant (Betters-Reed, 1983, p. 251).

MGH IHP has a blend of part-time and full-time faculty. Where previous practical and university experience is required for the full-time faculty, and clinical assignments are arranged, many of the part-time faculty (primarily from the hospital) have limited or no teaching experience on the graduate level. The fact that the faculty are in separate locations and differ according to credentials and experience poses many obstacles to a productive working relationship. Although this structure should facilitate the integration of theory and practice, issues of authority, responsibility and primary allegiance threaten its success. The added research component and its demand on faculty further diffuses the amount of attention on the goal to integrate theory and practice.

A strong practical component is an integral part of all three institutions' curricula with the Wang Institute providing the most innovative methods and ADL/MEI being the most traditional in approach. At the Wang Institute, term projects, focusing on application of theory, are an integral part of the curricular sequence and laboratory experience with complete computer facilities is part of each technical course. An important part of the course work is the management component which is designed to help students learn to incorporate and apply the advanced technical knowledge in their respective jobs.

Although the Wang Institute is the youngest of the institutions, it has the most extensive curricular review where the NAAC, students, and all faculty are involved in assessment. The NAAC, which links education and industry, provides validation of the theories and methods used by the faculty. Because the students are also experienced in industry, their interpretation of course validity is valuable. An attrition study conducted at the Wang Institute in 1981-1982 demonstrates the willingness

of the faculty to gather and respond to curricular feedback. The use of faculty notebooks to completely document course content and methodology further assist the evaluation process. This extensive process enables faculty to change curriculum and methods. ADL/MEI once had course notebooks for the same purpose, but no one recalled that they were used.

The key to MGH IHP's successful curricular response to integrating theory and practice will be its ability to integrate the classroom and clinical experiences. Open communication and collaborative efforts between MGH IHP faculty and clinical supervisors will be necessary. While it is too early to assess the degree of success, it is clear that the issue of substance, as defined by a couple of professors, needs attention (Betters-Reed, 1983, p. 179). For MGH IHP and ADL/MEI the accreditation self-study process has helped them respond to these areas of curricular evaluation and goal achievement.

While offering specialized professional education, each program demonstrates varying degrees of attention to developing a breadth of knowledge and therefore a stronger theoretical base. MGH IHP particularly stressed the importance of interdisciplinary cooperation for practitioners, students, and educators and demonstrated this emphasis throughout the planning process as well. The importance of their interdisciplinary teamwork goals reflects an attempt to prevent the isolation and lack of cooperation inherent to increasing fragmentation and single-mindedness through the dispersement of faculty offices, combined classes and teamwork with student clinical practices and research projects.

To a lesser degree, ADL/MEI has demonstrated an evolution toward increasing breadth by offering several specialization options after completion of a core of general management classes, running short-term

programs simultaneously, and recognizing a need to diversify the students. However, it remains crucial to the goals of ADL/MEI that it continue to offer the specialized programs specific to developing-country needs and and resist the generalization trend toward an Americanized MBA.

The Wang Institute balances its program to a limited degree by offering managment courses with the advanced specialization of computer software engineering in order to reach its goal of providing the leaders for tomorrow's high technology industry. However, each of the programs' ability to offer interdisciplinary options is limited by design, as they are professional schools not offering liberal education and not affiliated with comprehensive institutions. This is an issue the Wang Institute and MGH IHP will have to confront before further expansion.

These three institutions share a serious dedication to advanced practitioner education, but MGH IHP also adds the research component. While the level of research skills varies according to the program, the medical model of integrating theory, practice, and research is necessary for all health professionals and complements their interdisciplinary goals. This approach responds to a need in the health care workplace, but also intensifies the demand for time and skill placed on faculty and hospital staff. At ADL/MEI and the Wang Institute the faculty concentrate on good teaching for pragmatic application. MGH IHP's challenge is, can its students concentrate on all three without succumbing to the trends of traditional graduate education?

Although MGH IHP and the Wang Institute have yet to develop the student population they plan to have at full capacity, it is important to assess the interim student population. All three institutions admit students who are at an advanced educational level and have substantial experience. The nursing program, combined dietetics program, and social work in health care programs at IHP are exceptions to this practice, but

intense clinical components compensate for lack of experience. The variation in levels of experience will, however, affect the MGH IHP's ability to integrate interdisciplinary courses. Ideally, it is believed, students should be full-time to obtain the most from this integrated experience. This seems contradictory to other linkages designed for integrating experience and practice that encourage part-time relationships, such as ADL/MEI's part-time faculty and MGH IHP's dual assignment for faculty.

However, given the unique nature of ADL/MEI's students and the intense academic demands on students from all three institutions, full-time status seems justified. For start-up purposes, however, MGH IHP and the Wang Institute have had to rely on part-time students. Precedents about planning and decision-making will be formed from experience with part-time students and these precedents will have to be amended for full-time students.

The Wang Institute and ADL/MEI have clearly defined, target-specific recruitment plans for obtaining highly motivated, talented students. Yet, the level of financial support these two schools can maintain will affect this goal, whereas, financial aid is somewhat curtailed by the school's dependence on public funds. MEI has the added feature of a strong alumni program. Its alumni assess their own ability to apply what they learned and in turn recommend the program to others.

The ADL/MEI students have the most difficulty with the experiential approach to learning, but the faculty and staff appear to be solving this problem by increasing their support services. ADL/MEI, the oldest institution of the three has the most advanced support services; the Wang Institute's are the least developed. The nature and size of the institution appear to be related to this development. As the institutions

grow and the students' demands and needs increase, the services designed to help them also expand. Support services, while not directly related to the integration of theory and practice, are intended to facilitate total student development and subsequently improve their learning ability. The need for such assistance is most obvious with the multi-cultural nature of ADL/MEI's students.

This commitment to an integration of theory and practice and to supply practitioners at the advanced professional level to the workplace defines the character of ADL/MEI, MGH IHP and the Wang Institute. This commitment (figure 1.2) illustrates another challenge facing them: to maintain a balanced response to the demands from forces pulling toward traditional university-based graduate education and those pulling toward the industries which they serve. Figure 1.5 illustrates these forces and their relationship to theory and practice. External and internal forces have always affected graduate professional education and determined its character. During the era of the colonial college, and later the research university, experimental schools reacting against institutional hegemony, struggled to resist conformity and tried to maintain their innovative qualities. It appears that in order for ADL/MEI, MGH IHP and the Wang Institute to do the same, their leaders must be aware of such forces in order to remain true to their mission to better integrate theory and practice.

(insert figure 1.5)

Those forces driving the institutions toward conformity in their early development were degree-granting and accreditation self-study processes. Although these forces do not appear to be as significant with the development of the Wang Institute, their impact was indirect through the advisory groups (IAC, NAAC) and initial administrators who were well

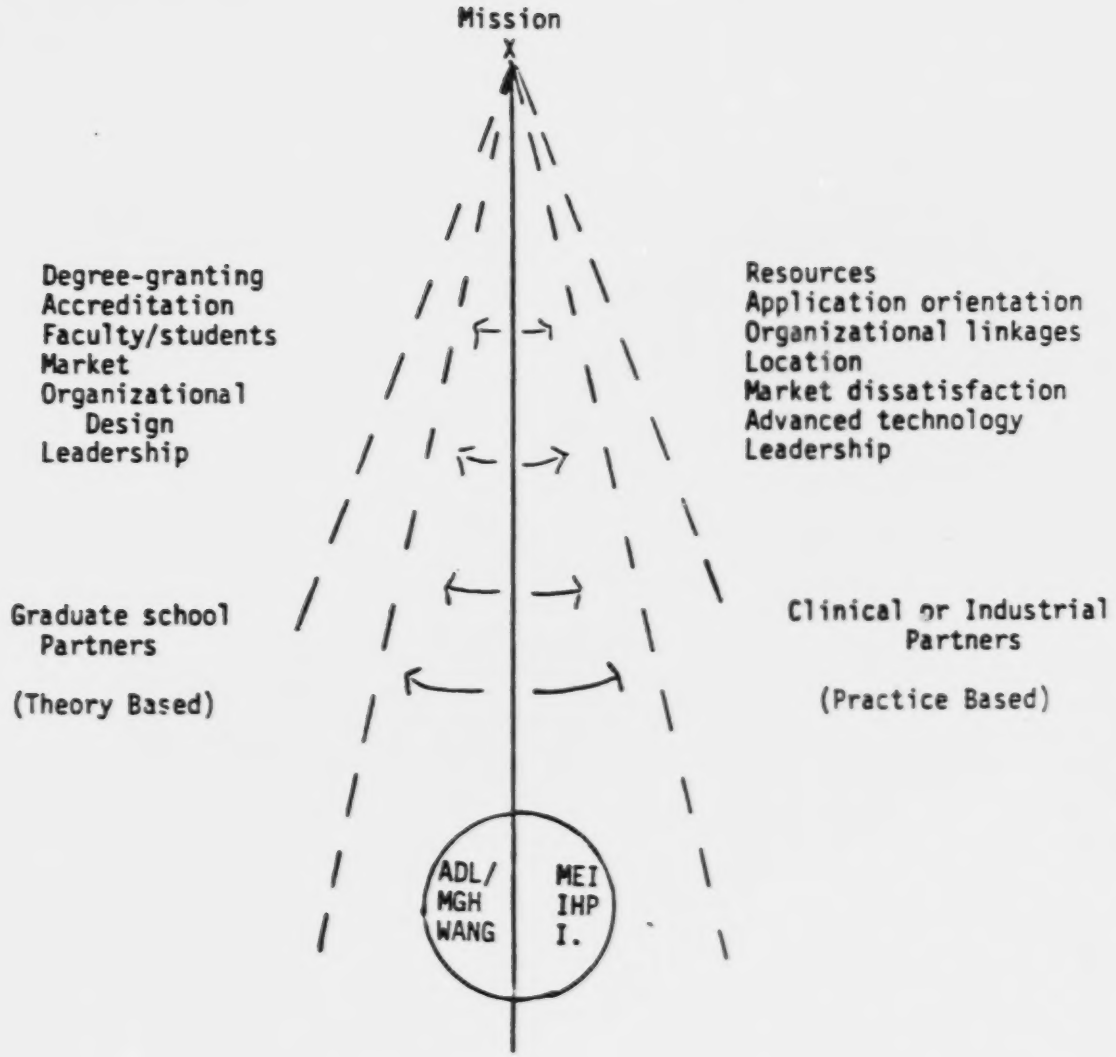

Figure 1.5. The Forces Driving ADL/MEI, MGH IHP and the Wang Institute Toward Traditional Graduate Schools and Toward Industrial Partners

aware of the degree-granting and accreditation standards. While guaranteeing minimum standards for institutions of higher education, such standardization also diminishes uniqueness and can stifle experimentation.

The process of seeking degree-granting status forces the institution through a metamorphosis in order to become a member of the higher education community. Similar to the next process of accreditation, the impact of this metamorphosis varies according to how much each institution prepared in advance for this process and how much it can resist the external pressure to conform to the recommended standards. Historically, the increased number of regulating agencies increased standardization which in turn tended to decrease innovation.

This phenomenon was most apparent at ADL/MEI where, with no initial plans to become a degree-granting institution, traditional academic practice did not govern the school. Reactions were confused and the visiting committee was puzzled by the proprietary nature of MEI, the use of part-time faculty, and how to maintain high standards and guarantee academic freedom. The leaders of the Institute were appalled by the time, money and bureaucracy required for degree-granting authority. At MGH IHP the extensive planning process was met with the same questions from the BHE and intense resistance from the academic community. For both schools, adapting the degree-granting criteria to precendent-setting innovative institutions was a difficult process. Less persistent schools, regardless of quality, might not have succeeded. Each institution was also required to submit follow-up reports. Although the process was grueling for ADL/MEI and MGH IHP, it increased their pride and affirmed the quality of their program. They also managed to retain the general character of their programs with only a few compromises.

The Wang Institute degree-granting process from the beginning appeared not to be a matter of if, but when. Dr. Wang took precautions to reduce any resistance by involving both industrial and educational communities at influential levels. The Wang Institute was much less controversial than MGH IHP and ADL/MEI because it looked to be (or would look to be) like any other graduate institution. The visiting committee directed its attention to specific goal implementation and role clarification. It indicated that roles such as Dr. Wang's, the NAAC, and the faculty needed clarification. Degree-granting had much less of a conforming effect upon the Wang Institute in comparison to ADL/MEI and MGH IHP because there was less controversy, less to review, the preparation for degree-granting was the responsibility of primarily one person, and there were no programs currently operating which had to be changed. However, the focus on expediting the task may have sacrificed some early process and evaluation issues which, had they been confronted then, may have prevented later conflict and confusion.

Regional accreditation had a greater influence on institutional development, especially for ADL/MEI and MGH IHP which were subject to more suspicion because they appeared to deviate from the norms. ADL/MEI went through two accreditation self-study processes which resulted in extensive formalization of the institutional structure, policy, procedure and curriculum. This process was a new experience both for ADL/MEI and the New England Association of Schools and Colleges, The accreditation process challenged ADL/MEI's ability to remain consistent with its institutional objectives while complying with external standards and regulations. In the process, a unique merging of models emerged, similar to the expected outcome for MGH IHP and the Wang Institute. Accreditation encouraged increased diversity and growth and more conventional academic

appurtenances at ADL/MEI. This indicated increased conformity and decreased specialization and originality. For example, more general management courses were recommended and the organization changed to include a dean and increased faculty involvement in academic decision-making. Accreditation prompted increased professionalization and encouraged a trend toward a general management program. Although more acceptable to traditional academia, ADL/MEI is less unique today, especially with fewer third world students and more students from developed nations.

MGH IHP and The Wang Institute, desiring accredited status from the outset, designed their institutes to look more acceptable in the academic community and had many recognizable appurtenances in place or planned. In the case of MGH IHP, standards of the accrediting agencies for each profession were considered very early in planning and implementation; a nursing degree could not be awarded without accreditation from the Massachusetts Board of Nursing. For the Wang Institute, professional accreditation is less demanding because of the newness of the profession. This newness in turn allows for more freedom and a greater degree of experimentation.

The self-study process in an important part of MGH IHP's growth and development. It is being used as an evaluative tool to help ease the transition from planning to implementation and to involve the current staff members in decision-making and consideration of long-range plans. The self-study involves everyone in the Institute.

The Wang Institute's accreditation self-study process is secondary to its outcome. Whereas little resistance was expected, the self-study and visitation, conducted again on a much smaller limited scale than the other two institutions, was completed in less than one year's time. Similar to

the degree-granting process, one person was responsible for expediting the task. The purpose of accreditation is to promote self-evaluation and institutional improvement. While this may not be as critical at the Wang Institute due to other evaluation mechanisms, the comparative lack of faculty and staff participation with the accreditation self-study is significant.

Each of the institutions found accreditation a necessity (although ADL/MEI did not initiate the process until approached by NEASC) for funding, recruitment and legitimacy. For ADL/MEI and MGH IHP it also served as valuable evaluation tool. The indirect effects on the Wang Institute are apparent in the simultaneous initiation of long-range plans and curriculum review.

Degree-granting and accreditation processes push an institution toward conformity, but so do faculty and students. They often want to ensure that they are part of an institution which is acceptable to their peers and employers. The criterion for such evaluation is often "sameness", meaning they may pressure their institution to emulate the path and appurtenances of those traditional institutions which they esteem. Although the employment market generally pressures higher education to respond to its changing needs, it can be fickle and also refuse to employ graduates of institutions which are nonconformist and unestablished.

The specific organizational design chosen by each institution can pull them in either direction depending on the strength of the structure. Generally when traditional and familiar terms or structures are adopted, such as a dean versus a director title or a bureaucratic structure versus a project group one, they are universally understood and traditional norms and values accompany them. On the other hand, newer concepts, such as

linkages to industry, may tend to resist conformity. This makes the choice of organizational titles and designs crucial to maintaining a desired balance between the traditional and nontraditional and between theory and practice.

Advancing technology and increasing specialization pressure ADL/MEI, MGH IHP, and the Wang Institute toward change and experimentation. These institutions are in environments supportive of this direction due to competition and the rate of technological advancement. They also have the resources to support experimentation, but clearly the Wang Institute's resources exceed those of ADL/MEI and MGH IHP.

The forces pulling the three institutions in either direction can be summarized in four categories: resources, both financial and human; environment, internal and external; leadership; and mission. In figure 1.5 leadership is classified as a force for nonconformity and conformity. This classification is based on the importance of the leadership role in establishing new institutions. Mission is placed in figure 1.5 between the opposing driving forces as it serves a balancing influence. A clear mission, shared by all three institutions, facilitates an integration of theory and practice. In order to accomplish their mission, attention must be directed to both polarizations and the benefits offered by their forces.

The search to integrate theory and practice is a continual process of maintaining a balance between these forces. Given the unique position and nature of these three innovative graduate professional institutions, they promise to provide not an end to the search, but certainly an innovative path.

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normally determined by advanced statistical methods and will be given to the student in this text.

PRODUCTION POSSIBILITY FRONTIER: This is also known as the transformation frontier and represents the maximum possible combinations of goods and services which can be produced in a given society in a given time period. This will be more fully discussed in Chapter II.

RESOURCES: Those things which are either used to satisfy human needs directly or which are used in the production of goods and services.

SCIENTIFIC METHOD: The method of analysis whereby the scientist first proposes an hypothesis (or theory) to explain certain phenomena and then tests this hypothesis in order to determine its acceptability.

SLOPE: The rate of change of the dependent variable with respect to changes in the independent variable. The amount that the dependent variable increases with a one unit increase in the independent variable.

TANGENT TO A CURVE: A straight line which touches the curve in exactly one point in a neighborhood and lies either entirely above or below the curve in that neighborhood.

UTILITY: That thing which we assume the individual consumer is attempting to maximize.

VARIABLE: Something which enters into the analysis and

which is presumed to change either independently or as a result of changes in other variables in the analysis.

I.9 QUESTIONS/PROBLEMS

1. If you were employing a narrow definition of economics what costs might you consider in making the choice of whether or not to have children?
2. How might the decision of whether or not to have children be altered by non-economic factors? Which are more important, non-economic or economic factors? Why?
3. As we all know, a tall person is more likely to be heave than a short person. Could you draw a free hand graph of average heights and averave weights with height as the independent variable? Draw the graph if possible.
4. Draw a graph showing the expected sales of mustard as a function of the number of hot dogs purchased in a given time period. Is this a direct or an inverse relationship? Why?
5. Assume that you have a total of five hours a day during which you can <u>either</u> watch television <u>or</u> study your economics (but not both). Draw a graph showing how much TV you watch as a function of how much you study economics.
6. What do you expect to be the opportunity costs for you in taking this course this semester? Be specific.

7. When you decide to attend class or not to attend class what are the costs and benefits you consider? What has this to do with the concept of opportunity costs?
8. If you go to a restaurant and have a choice between a sirloin steak at $12.95 and veal marsala at $11.25 what is the opportunity cost of buying the sirlion steak?
9. If you were interested in determining which mix of goods a consumer would buy with a given budget would you be interested in a microeconomic or a macroeconomic topic? Why?
10. If you were interested in determining how a consumer might change the mix of goods consumed when the government imposed an excise tax (similar to a sales tax) on certain goods would you be interested in a microeconomic or a macroeconomic topic? Why?
11. Would you be interested in a micro or a macro topic if you were studying the effect on inflation of a proposed change in government policy? Why?
12. Draw a free-hand graph of the following straight lines and state whether the relationship is inverse or direct.
    a. Y= 5+2X
    b. Q= 10-2P
    c. Q= 1+3L
    d. D= 100-5G

e. S= 2+3P

13. What is the slope of each of the graphs in question 12?

14. If you were at the beach amidst a number of other individual with largfe powerful radios would you be committing a fallacy of composition if you turned up your volume in order to hear your music better? Explain.